



Drainage Work Order Request For Repair

Hardin County

Date 7/2/2015

Work Order # 91

District # 1

Lateral Main

Township Jackson

Section 24 Twp 88 Rge 20 Qtr Sec NE1/4

Repair Requested By Terry Gast

Address _____ Phone (641) 640-0542

Landowner Terry Gast

Address _____ Phone _____

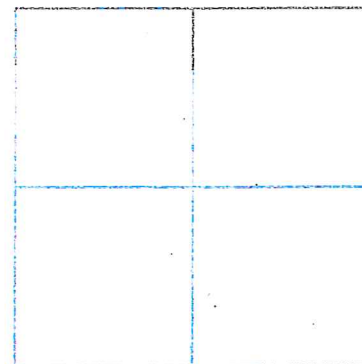
Request Taken By Tina Schlemme

Available for Repair Now? ☒ Yes ☐ No

Date Available _____

Problem Description Blowout right before open ditch in mowing area. 10-12' from fenceline.

Terry also mentioned that the field NE of there in the NW1/4 of Section 19 drains poorly. Might be a problem there as well?
Call Terry when come out as he'd like to be there.



Repair labor, materials and equipment _____

Potential Wetlands? ☐ Yes-Repair existing tile only

☐ No-Repair and maintain tile

Repaired By: _____

Date: _____

Please send statement for services to:

Hardin County Auditor's Office

Attn: Tina Schlemme

1215 Edgington Ave, Suite 1

Eldora, IA 50627

Phone (641) 939-8111

Fax (641) 939-8245

For Office Use Only

Approved: _____

Date: _____

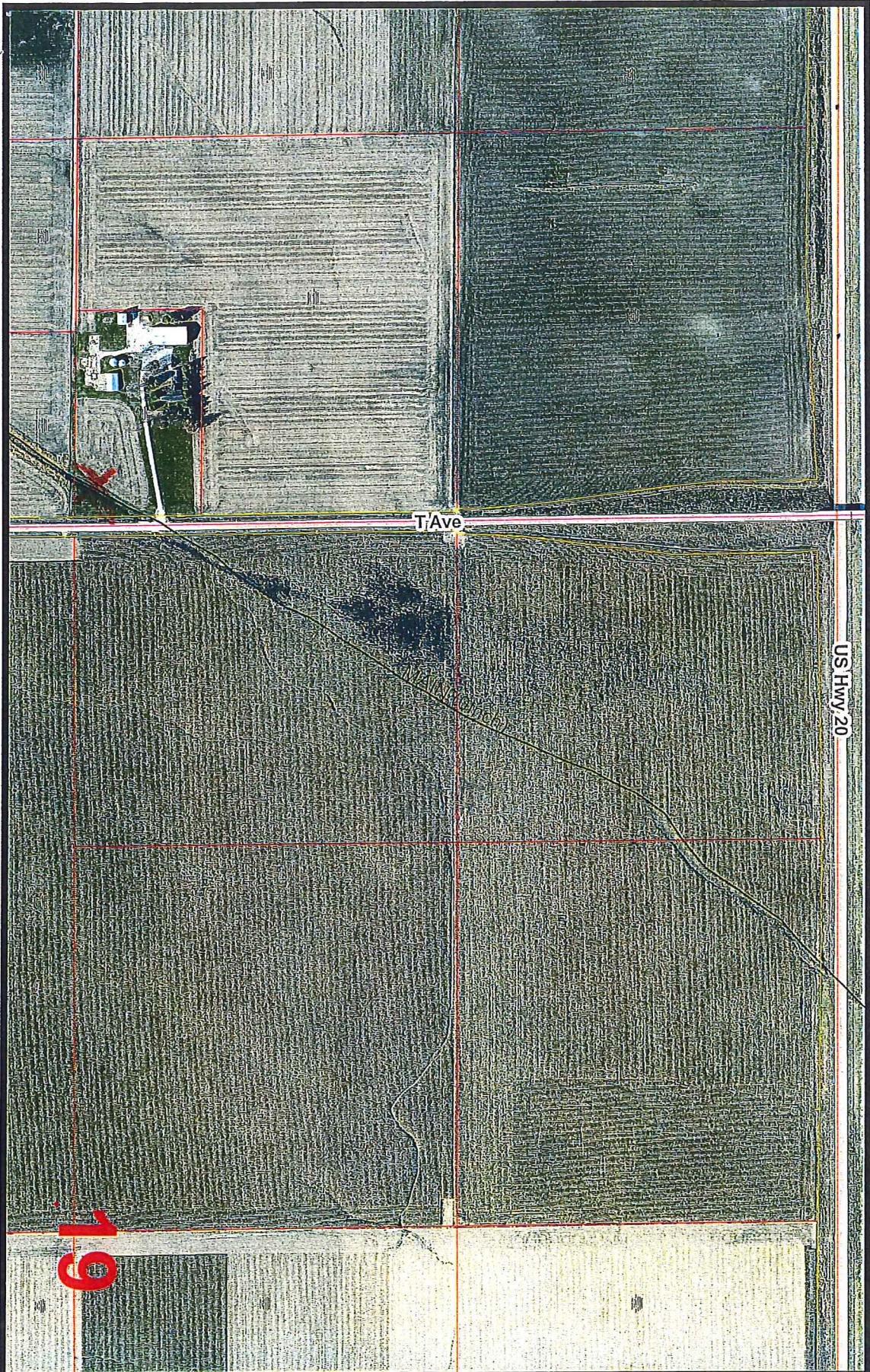


Hardin County Auditor's Office

0 0.0375 0.075 0.15 0.225 0.3
Miles



Date: 7/2/2015



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Drainage District:

#1

Repair Summary:

Landowner located in the NE¼ of Section 24, Township 88 North, Range 20 West reported a tile blowout. Upon talking with District Trustees, they authorized televising while tile was open for repairs. Excavated at blowout and found broken and egged shaped 22" VCP main tile.

Televised 1460'± downstream and found:

- 2 previous repairs with CMP (very rusty)
- 2 previous repairs with Dual Wall HDPE
- 21 previous repairs of break-ins with VCP brick bats (1 failing badly)
- 14 locations of partially collapsed VCP main tile
- 1 location of large deposits at joint
- 3 locations with large gap/separation at joint (sunlight or soil visible)
- 9 additional VCP tile sinkholes visible from surface (found while walking and locating tile)

Televised 61'± upstream and found:

- 1 previous repair with CMP (very rusty)
- 1 location of partially collapsed VCP tile
- Unable to televise any further due to large amount of debris (rock and sand) in bottom of tile

Repaired the main tile blowout with 24" Dual Wall HDPE tile and concrete collar.

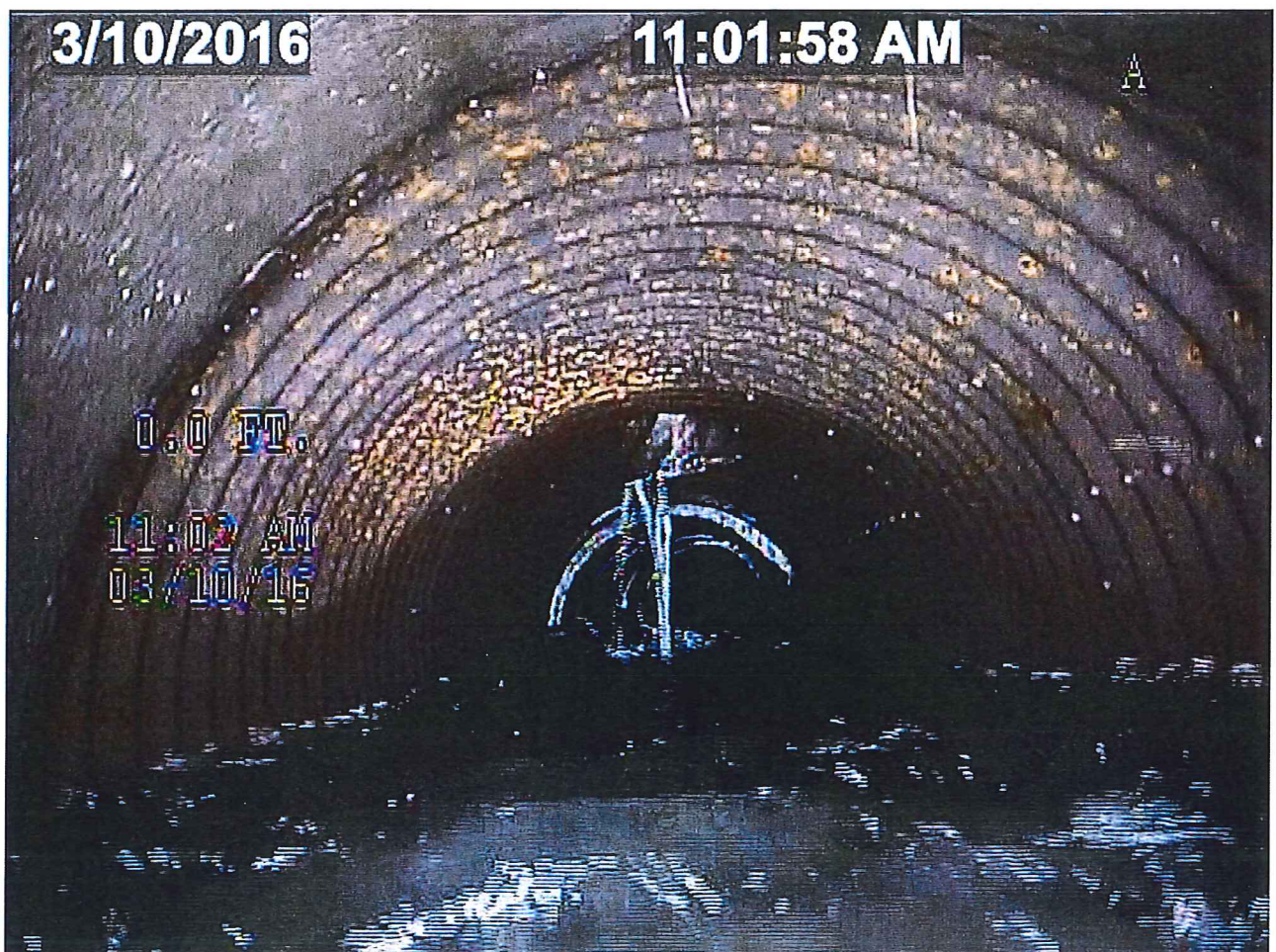
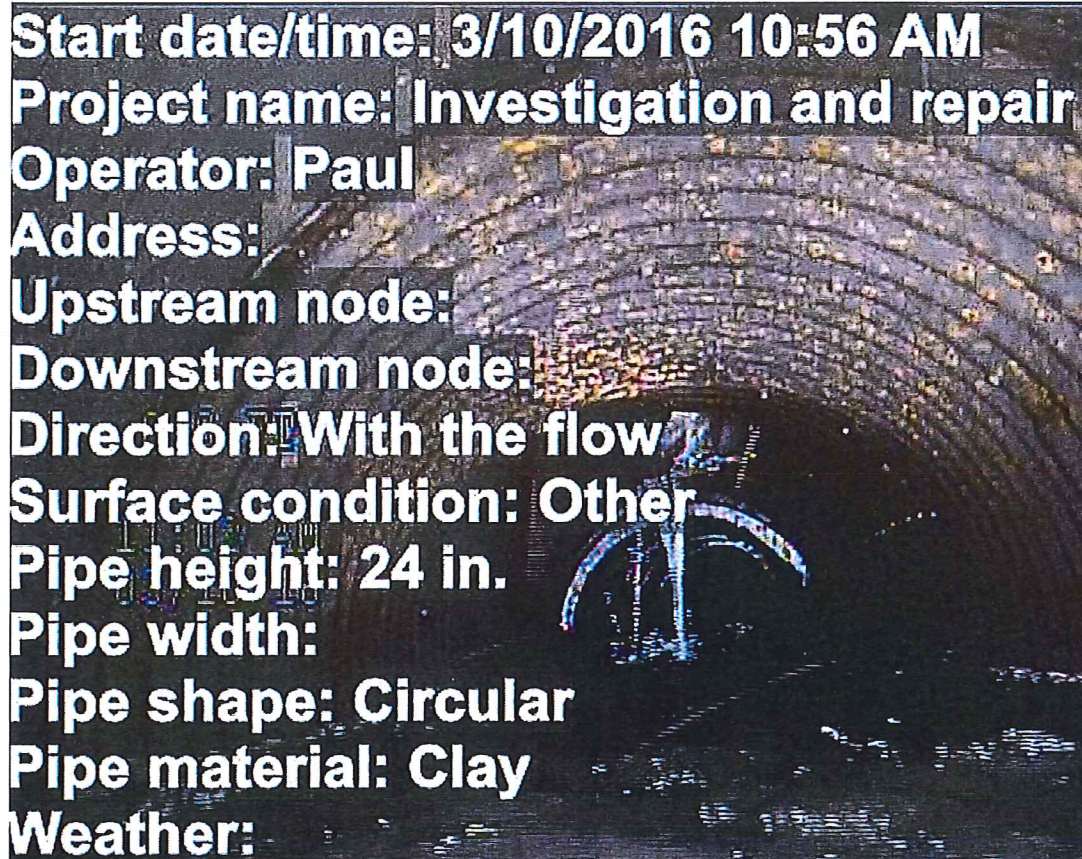
Contractor Time and Materials (spent while Ryken was on-site):

7 hours of Bobcat Mini Excavator with Operator
1.5 hours of Bobcat Skidloader with Operator
52.5 hours of 1 workman (includes time spent televising)
2.6' of 24" Dual Wall HDPE Tile
1 Concrete Collar
1521' of CCTV Inspection

Additional Actions Recommended:

Combining the above mentioned failures and previous repairs found while televising, the additional tile sinkholes found while walking the route, and the fact that the remaining VCP tile is cracked and egg shaped, it is obvious that the VCP main tile is past the end of its useful life. Based on this, we would recommend total replacement of the 1521' of tile televised and televising an additional 1000' past the replacement limits (upstream and downstream) to verify the VCP tile condition. If desired by the District Trustees, potholing and televising could be preformed prior to replacement to determine exact limits. Based on this, the cost would be over \$50,000. This cost is high enough that a hearing and possibly an engineering report would be required for said repair/improvement.

Start date/time: 3/10/2016 10:56 AM
Project name: Investigation and repair
Operator: Paul
Address:
Upstream node:
Downstream node:
Direction: With the flow
Surface condition: Other
Pipe height: 24 in.
Pipe width:
Pipe shape: Circular
Pipe material: Clay
Weather:



3/10/2016

11:17:49 AM

P

92.2 FT.

11:18 AM
03/10/16

3/10/2016

11:23:02 AM

A

115.8 FT.

11:23 AM
03/10/16

3/10/2016

11:26:10 AM

135.0 FT.

11:26 AM
03/10/16

3/10/2016

11:28:45 AM

151.2 FT.

11:29 AM
03/10/16

3/10/2016

11:34:21 AM

187.8 FT.

11:34 AM
03/10/16

3/10/2016

11:37:11 AM

213.2 FT.

11:37 AM
03/10/16

3/10/2016

11:38:16 AM

218.8 FT.

11:38 AM
03/10/16

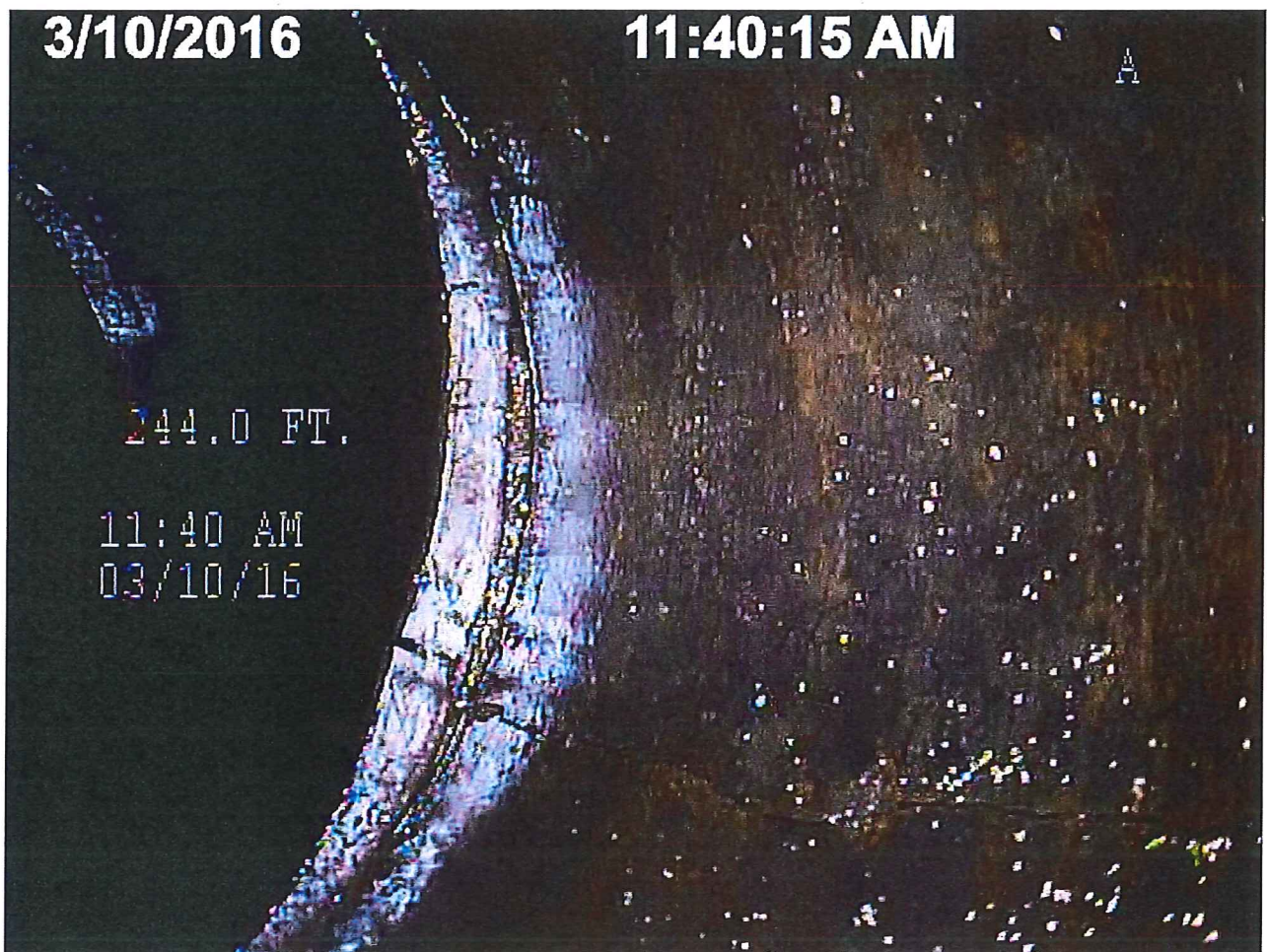


3/10/2016

11:40:15 AM

244.0 FT.

11:40 AM
03/10/16





3/10/2016

12:11:58 PM

288.6 FT.

12:12 PM

03/10/16

3/10/2016

12:20:44 PM

358.0 FT.

12:21 PM

03/10/16

3/10/2016

12:22:39 PM

371.1 FT.

12:22 PM

03/10/16



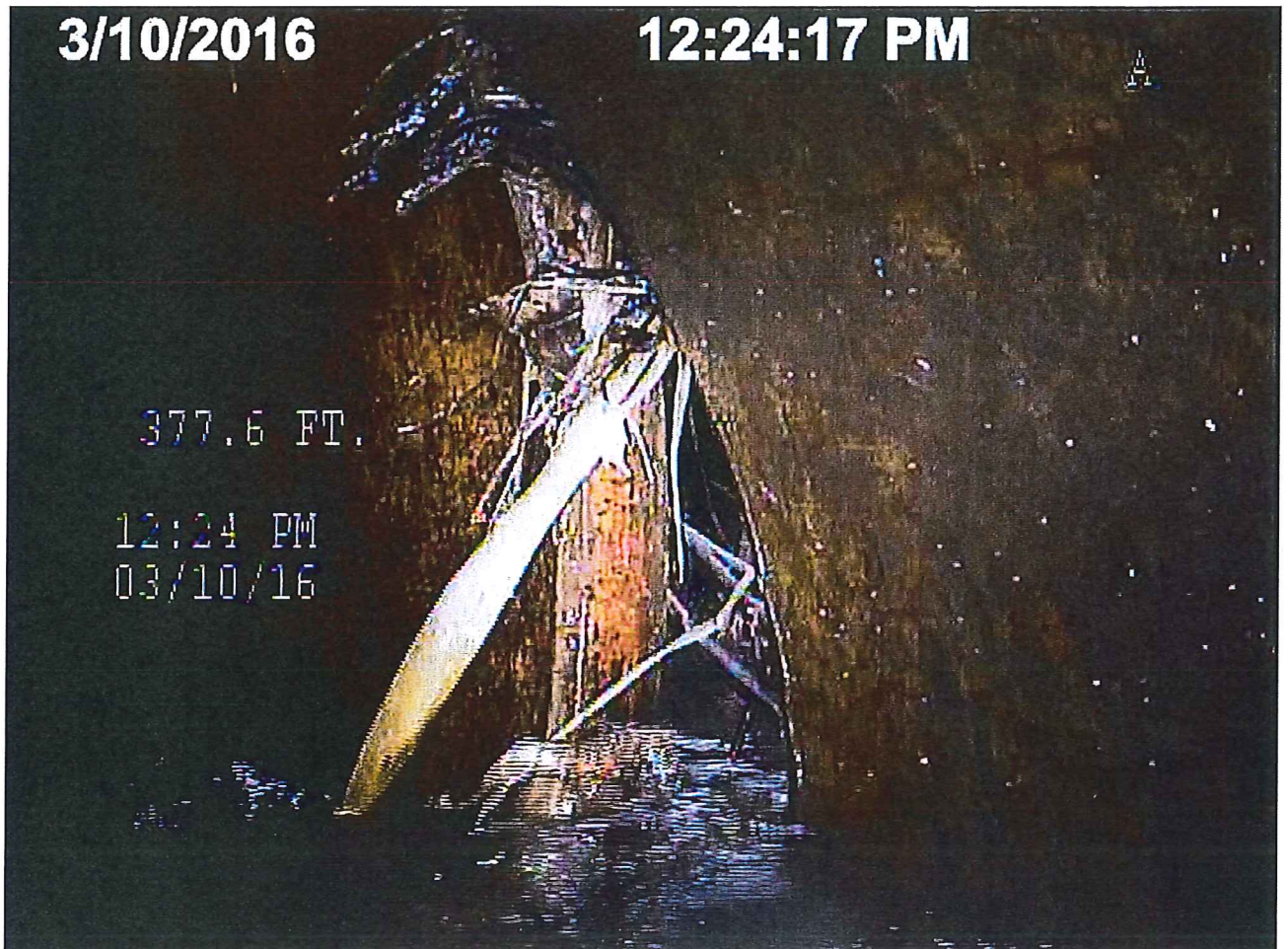
3/10/2016

12:24:17 PM

377.6 FT.

12:24 PM

03/10/16



3/10/2016

12:33:04 PM

480.2 FT.

12:33 PM

03/10/16

3/10/2016

12:35:06 PM

495.0 FT.

12:35 PM

03/10/16

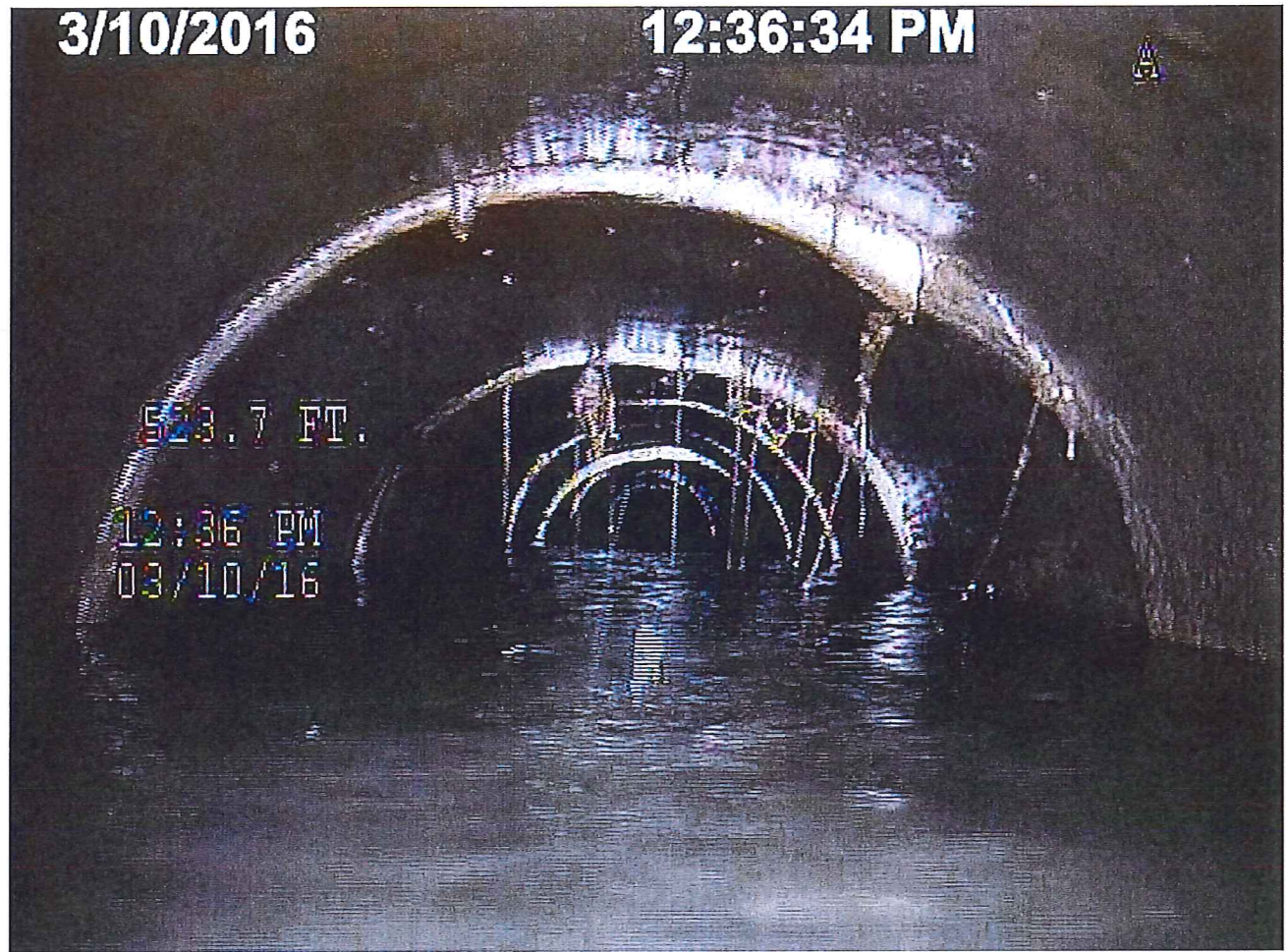
3/10/2016

12:36:34 PM

523.7 FT.

12:36 PM

03/10/16



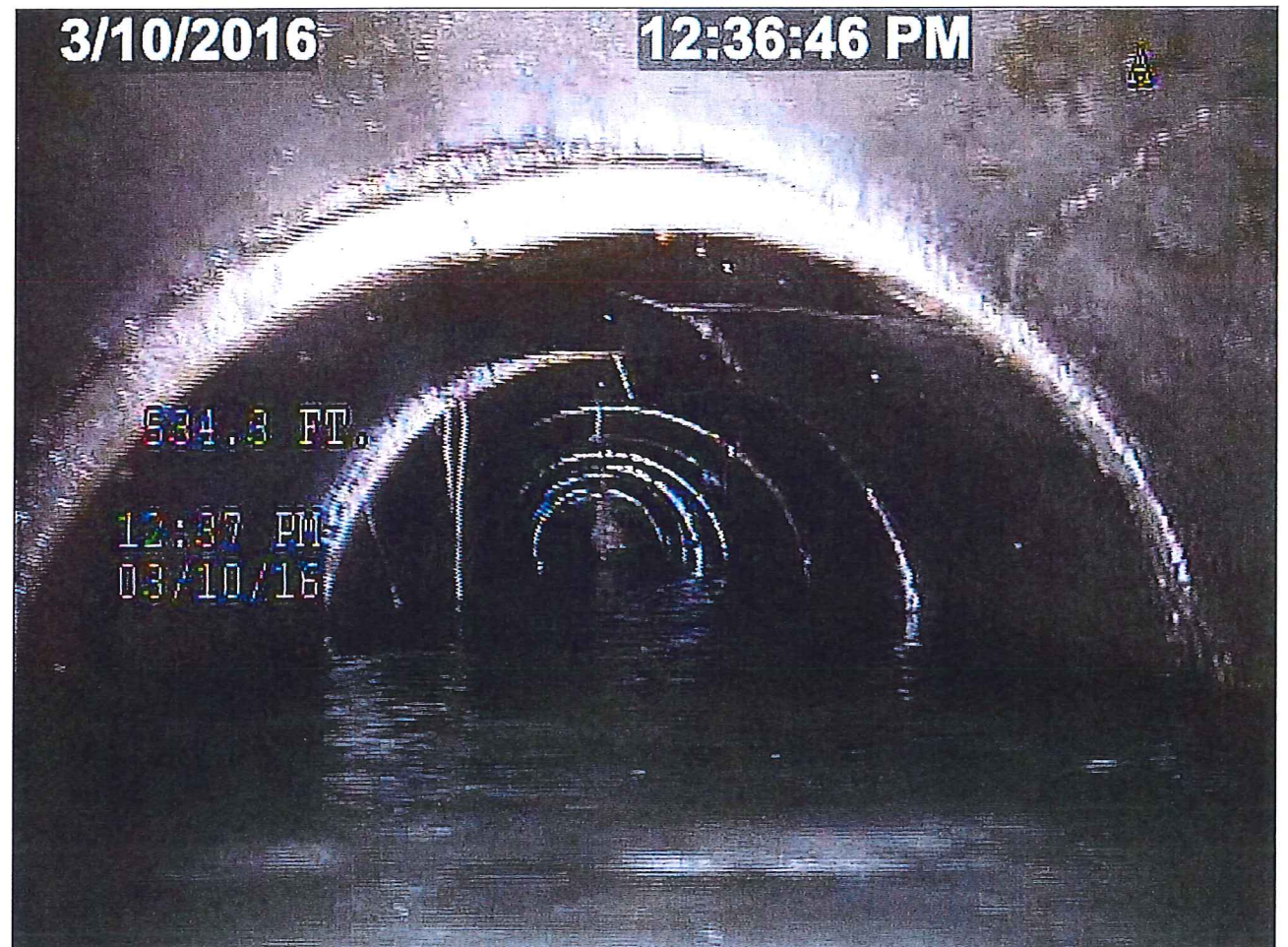
3/10/2016

12:36:46 PM

534.3 FT.

12:37 PM

03/10/16



3/10/2016

12:54:49 PM

807.9 FT.

12:55 PM

03/10/16

3/10/2016

12:57:51 PM

840.1 FT.

12:58 PM

03/10/16

3/10/2016

1:02:01 PM

941.0 FT.

01:02 PM
03/10/16



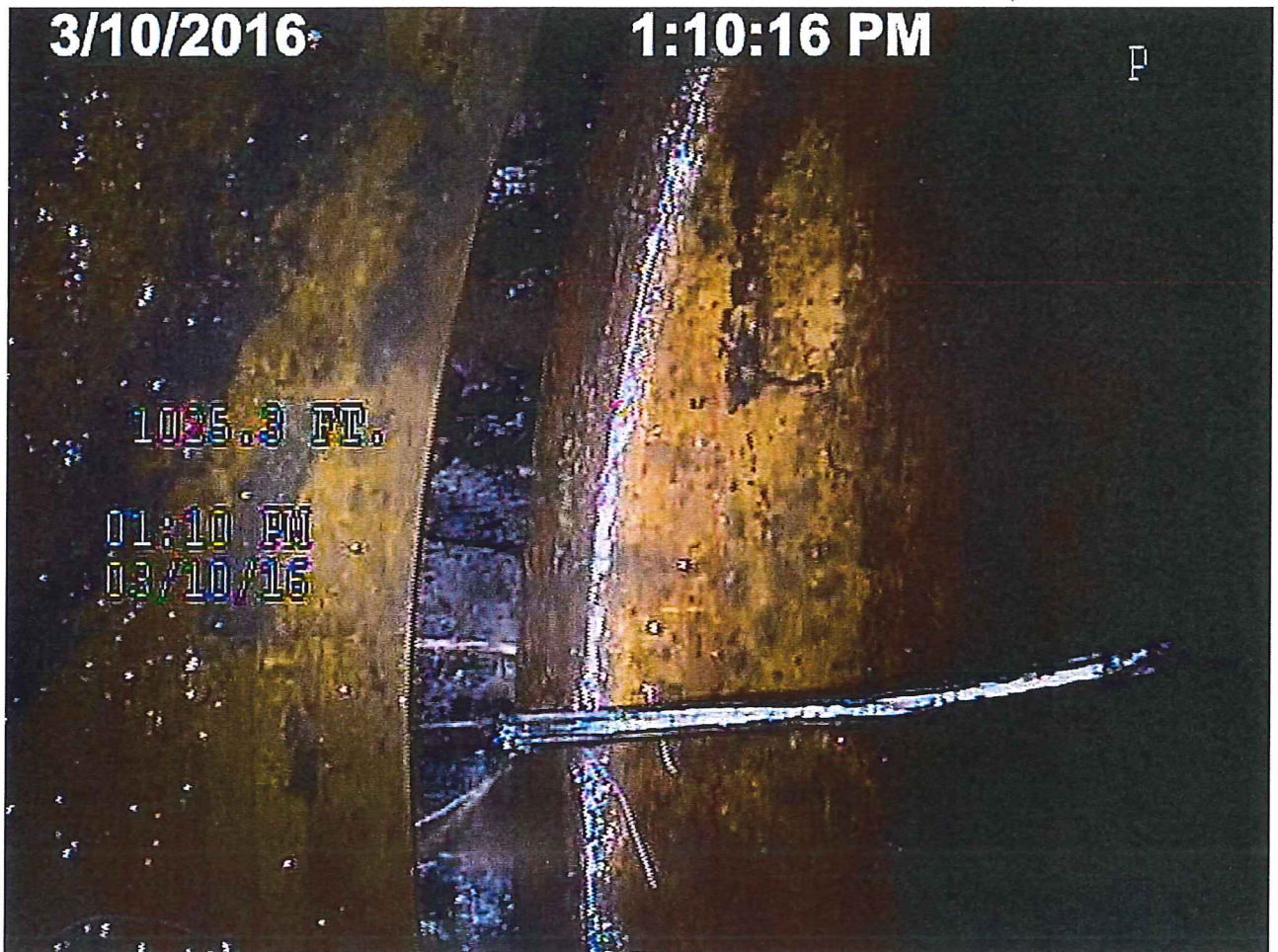
3/10/2016

1:10:16 PM

P

1035.3 FT.

01:10 PM
03/10/16



3/10/2016

1:28:45 PM

1130.8 FT.

01:29 PM

03/10/16

3/10/2016

1:30:12 PM

1140.2 FT.

01:30 PM

03/10/16

3/10/2016

1:31:41 PM

1146.5 FT.

01:32 PM

03/10/16



3/10/2016

1:33:18 PM

1162.2 FT.

01:33 PM

03/10/16



3/10/2016

1:34:06 PM

P

1175.0 FT.

01:34 PM

03/10/16

3/10/2016

1:41:31 PM

A

1223.0 FT.

01:41 PM

03/10/16

3/10/2016

1:51:02 PM

1302.9 FT.

01:51 PM

03/10/16

3/10/2016

1:56:50 PM

1314.5 FT.

01:57 PM

03/10/16

3/10/2016

3:56:46 PM

34.2 FT.

03:57 PM

03/10/16

Start date/time: 3/10/2016 3:37 PM

Project name: Investigation and repair

Operator: Paul

Address:

Upstream node:

Downstream node:

Direction: Against the flow

Surface condition: Other

Pipe height: 20 in.

Pipe width:

Pipe shape: Circular

Pipe material: Clay

Weather:

Distance: 0.0 ft.

Pipe Type - Pipe Material Change

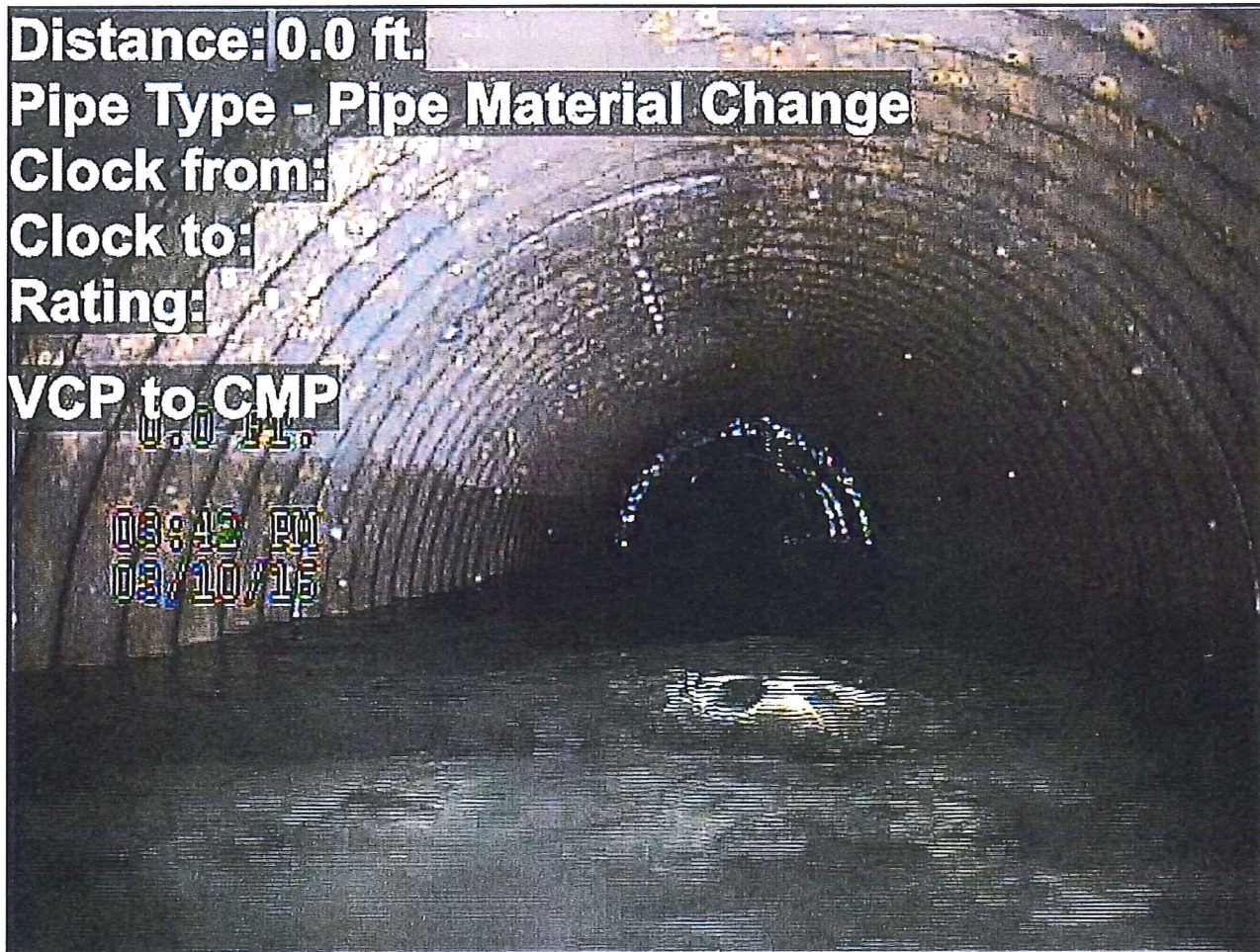
Clock from:

Clock to:

Rating:

VCP to CMP

03:45 PM
03/10/16



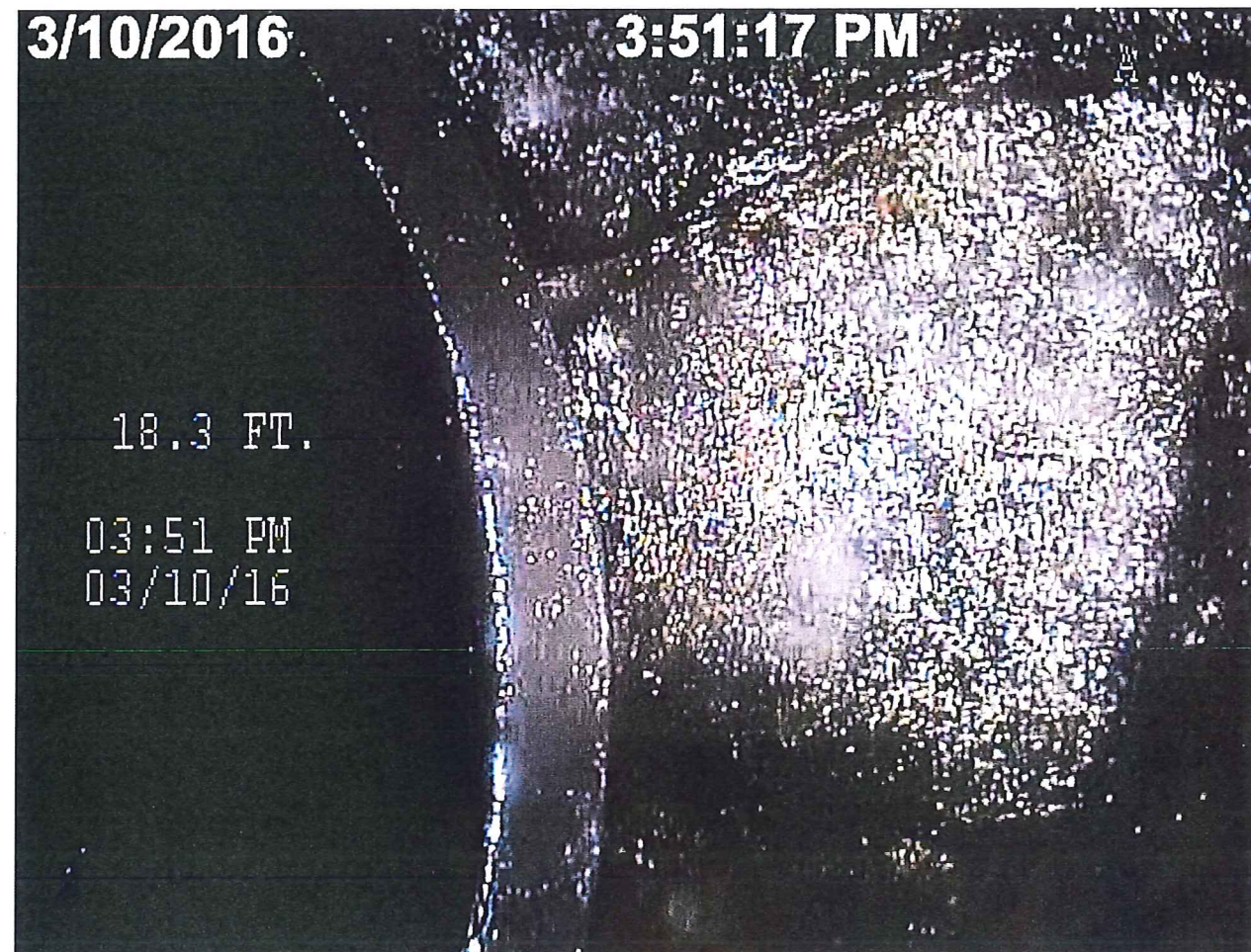
3/10/2016

3:51:17 PM

18.3 FT.

03:51 PM

03/10/16



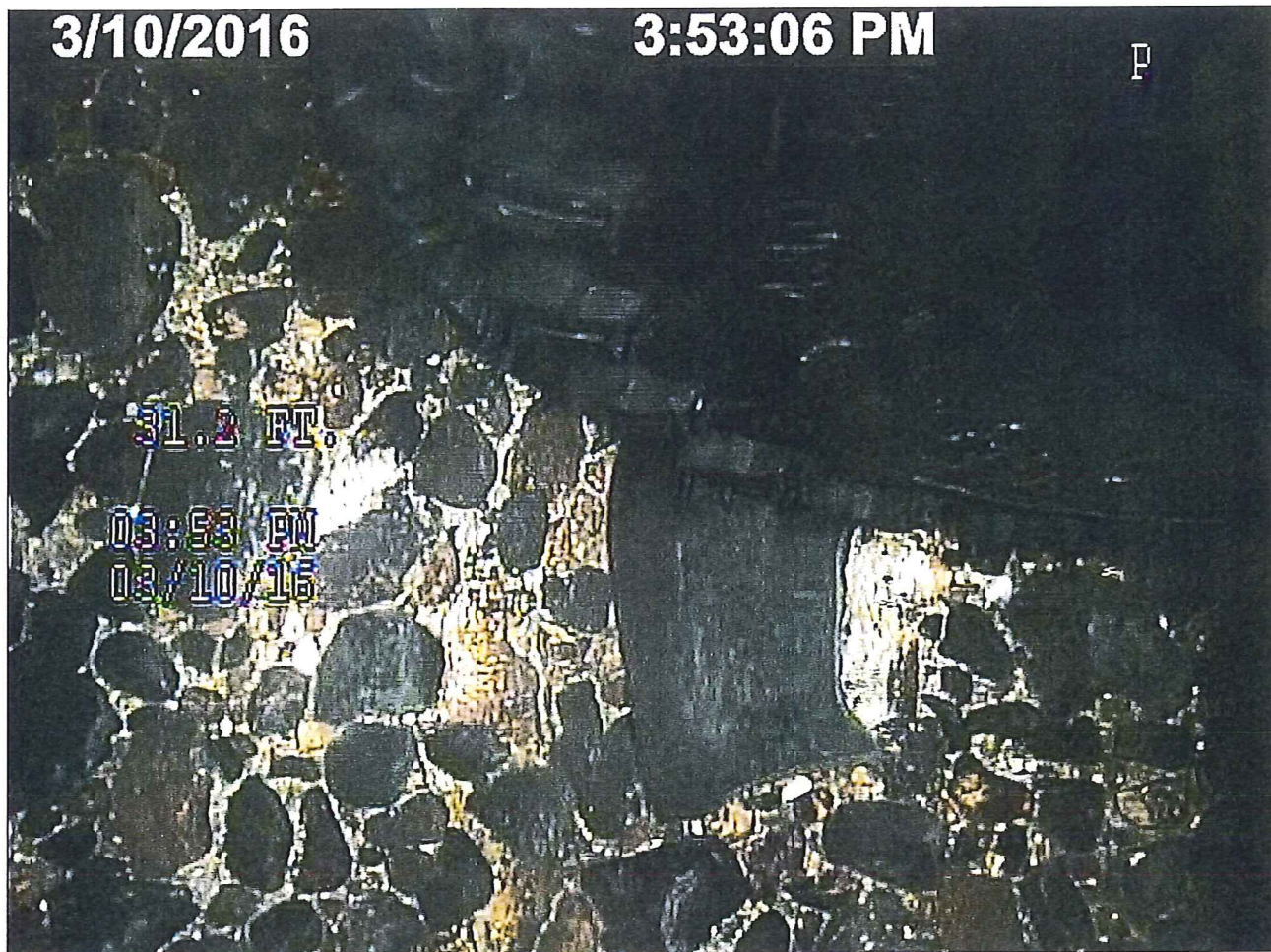
3/10/2016

3:53:06 PM

P

31.2 FT.

03:53 PM
03/10/16





Drainage Work Order Request For Repair

Hardin County

Date 7/2/2015

Work Order # 92

District # 1

Lateral Ditch

Township Jackson

Section 24 Twp 88

Rge 20

Qtr Sec SE1/4

Repair Requested By Terry Gast

Address _____ Phone (641) 640-0542

Landowner _____

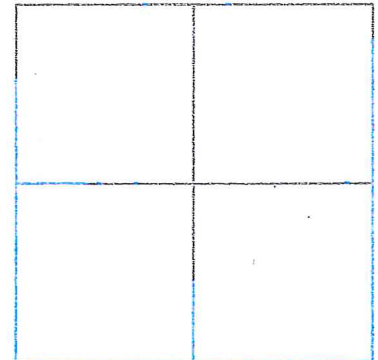
Address _____ Phone _____

Request Taken By Tina Schlemme

Available for Repair Now? ☐ Yes ☐ No

Date Available _____

Problem Description Requesting a ditch cleanout from E1/4 corner to Hwy D35.



Repair labor, materials and equipment _____

Potential Wetlands? ☐ Yes-Repair existing tile only

☐ No-Repair and maintain tile

Repaired By: _____

Date: _____

Please send statement for services to:

Phone (641) 939-8111

Fax (641) 939-8245

Hardin County Auditor's Office

Attn: Tina Schlemme

1215 Edgington Ave, Suite 1

Eldora, IA 50627

For Office Use Only

Approved: _____

Date: _____



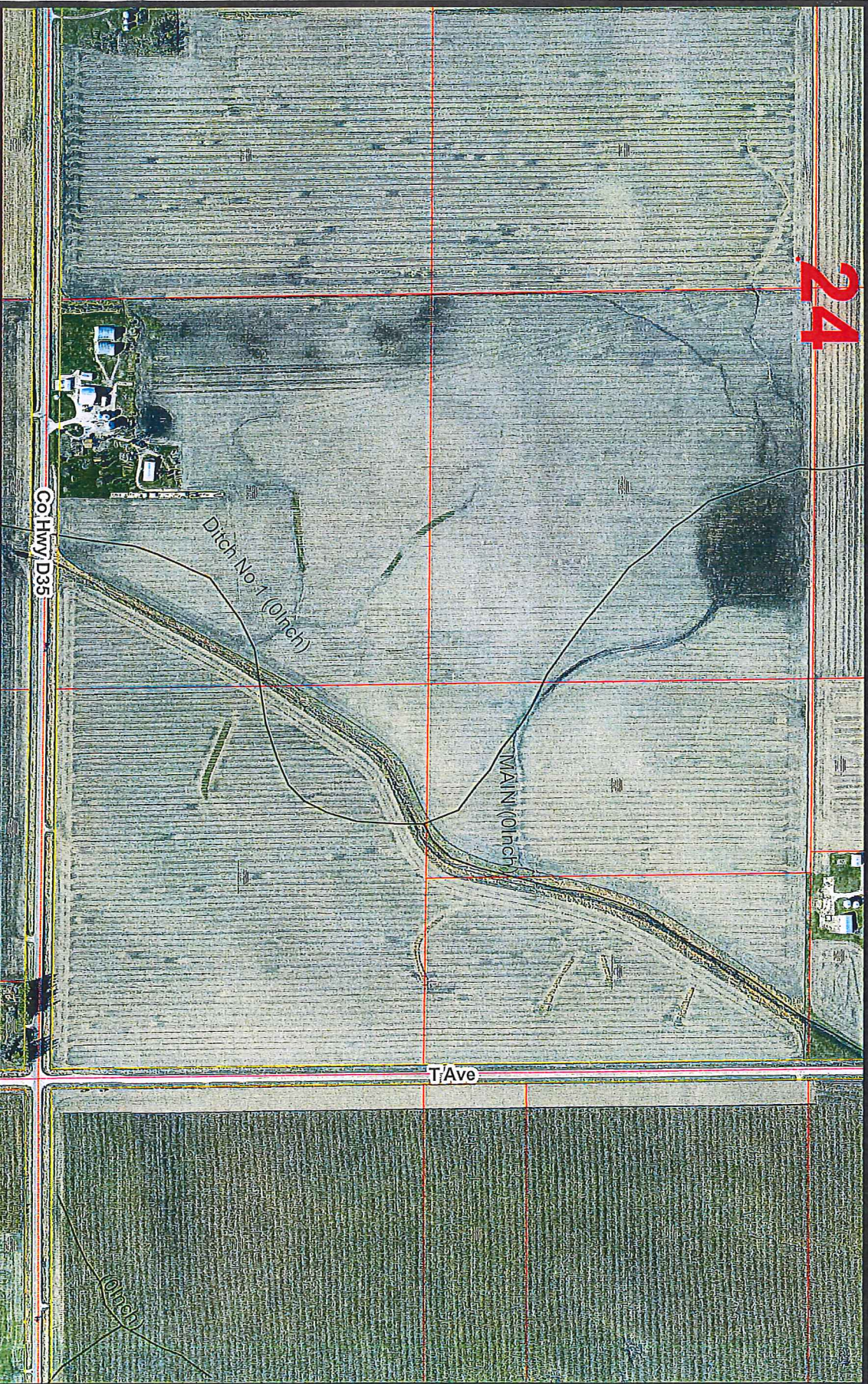
Hardin County Auditor's Office

0 0.0375 0.075 0.15 0.225 0.3
Miles



Date: 7/2/2015

24



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Drainage District:

1

Repair Summary:

Per previous recommended actions for Work Order #92 (located in SE¼ Section 24, Township 88 North, Range 20 West), excavated 2 locations on 23" VCP main tile and televised downstream from both locations. While televising, found previous repairs at 18 locations and partially collapsing VCP tile at 11 locations. Due to these and previously identified issues, temporarily repaired both excavated locations with 24" dual wall HDPE tile and fabric wrapped joints.

Contractor Time and Materials (spent while Ryken on-site):

9 hours of Mini Excavator and Operator

18 hours of Workman

6' of 24" Dual Wall HDPE Tile

2446' of CCTV Inspection

Additional Actions Recommended:

When all the CCTV results from Work Order #91 and #92 (3950'± total per the attached map) are combined with the defects found above, the following are at issue:

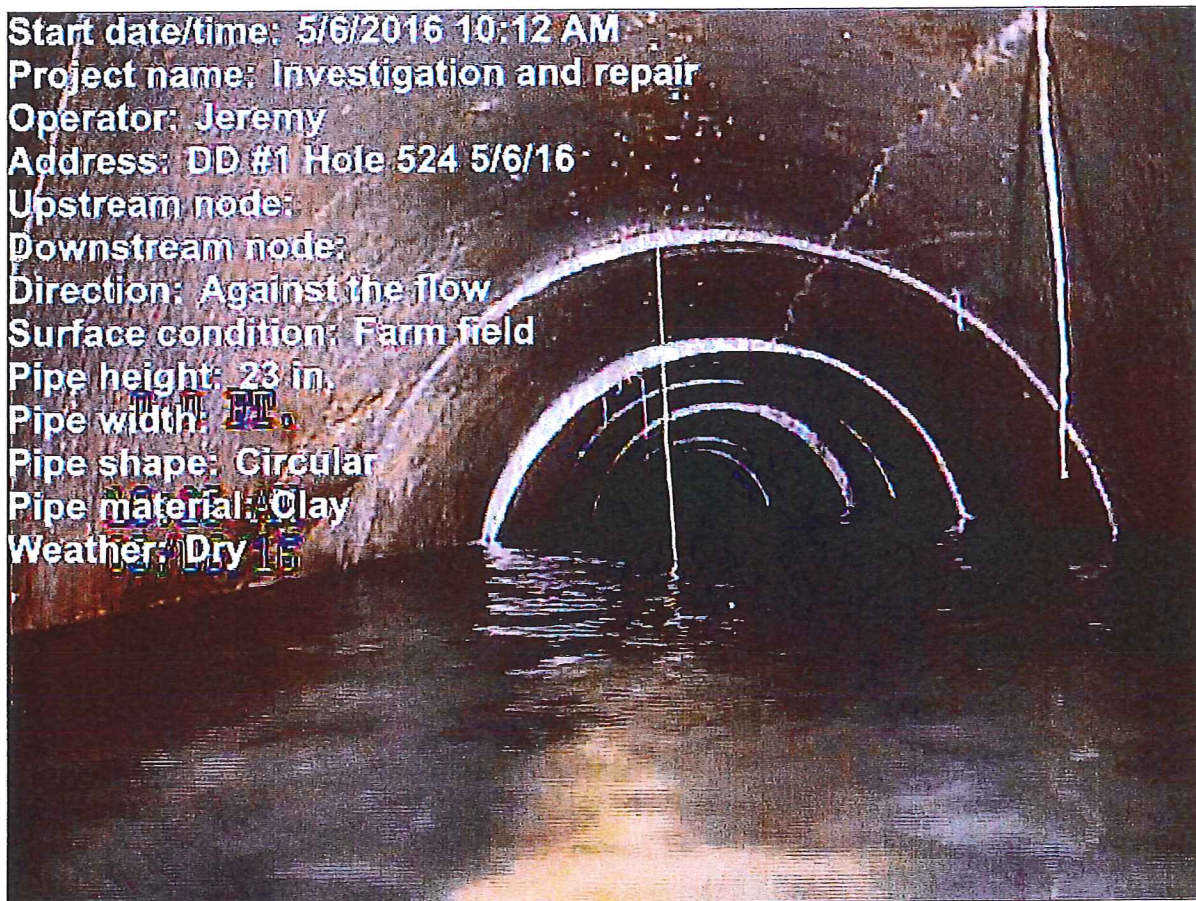
- 44 previous repairs (either total repair or wide brickbats at joints and holes)
- 29 partially collapsed tile (9 of which have reflected as sinkholes to surface)
- CCTV inspection was stopped at 2 locations due to debris in the tile.

Combined with the additional actions recommended from Work Order #91 and #92 that aren't related to CCTV, the following are also at issue:

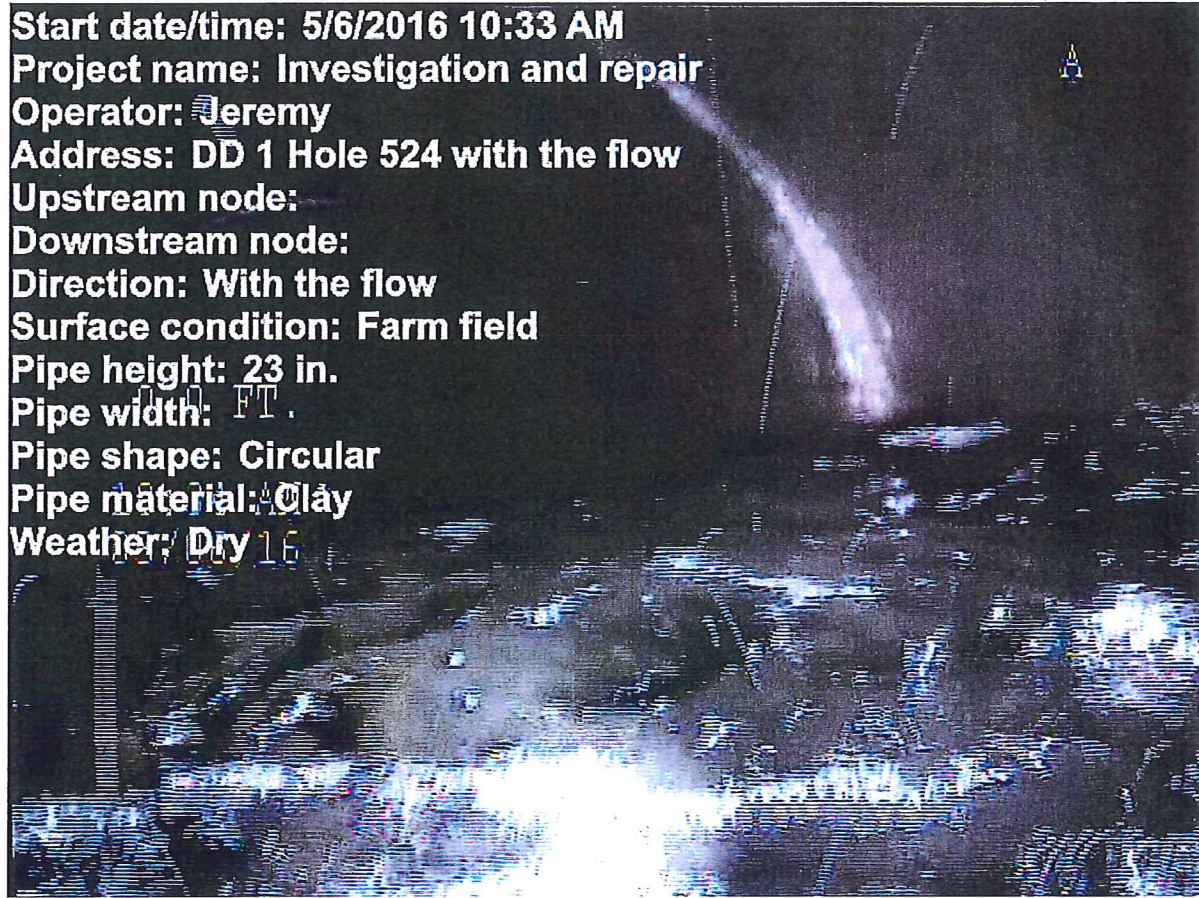
- 2200'± of overflow channel needs cleaned out between Highway D-35 and T Avenue. Depth of dirt that needs cleaned out varies from 0.2' to 2.8'
- The soil upstream of the existing headwall at the outlet of the tile is severely eroded and missing.
- The first 550'± of the main tile upstream from the existing headwall is missing several pieces of tile, has several blowouts, and has several sinkholes starting.

Based on the above, it is obvious that the main tile (VCP and repairs) is past the end of its useful life and has been so for a while. Based on this, I would recommend total replacement of the Main tile from the headwall at the downstream end of the drainage district to at least the upstream limits of investigation on the east side of T Avenue. This total length is 6900'±. Based on this, the cost would be well over \$50,000. This cost is high enough that a hearing and engineering report would be required for said repair. It should also be noted, that no investigation was performed upstream of T Avenue, so it is unclear at this point if that is a logical point to stop any proposed project or not.

Start date/time: 5/6/2016 10:12 AM
Project name: Investigation and repair
Operator: Jeremy
Address: DD #1 Hole 524 5/6/16
Upstream node:
Downstream node:
Direction: Against the flow
Surface condition: Farm field
Pipe height: 23 in.
Pipe width: 22 ft.
Pipe shape: Circular
Pipe material: Clay
Weather: Dry 15



Start date/time: 5/6/2016 10:33 AM
Project name: Investigation and repair
Operator: Jeremy
Address: DD 1 Hole 524 with the flow
Upstream node:
Downstream node:
Direction: With the flow
Surface condition: Farm field
Pipe height: 23 in.
Pipe width: FT.
Pipe shape: Circular
Pipe material: Clay
Weather: Dry



5/6/2016

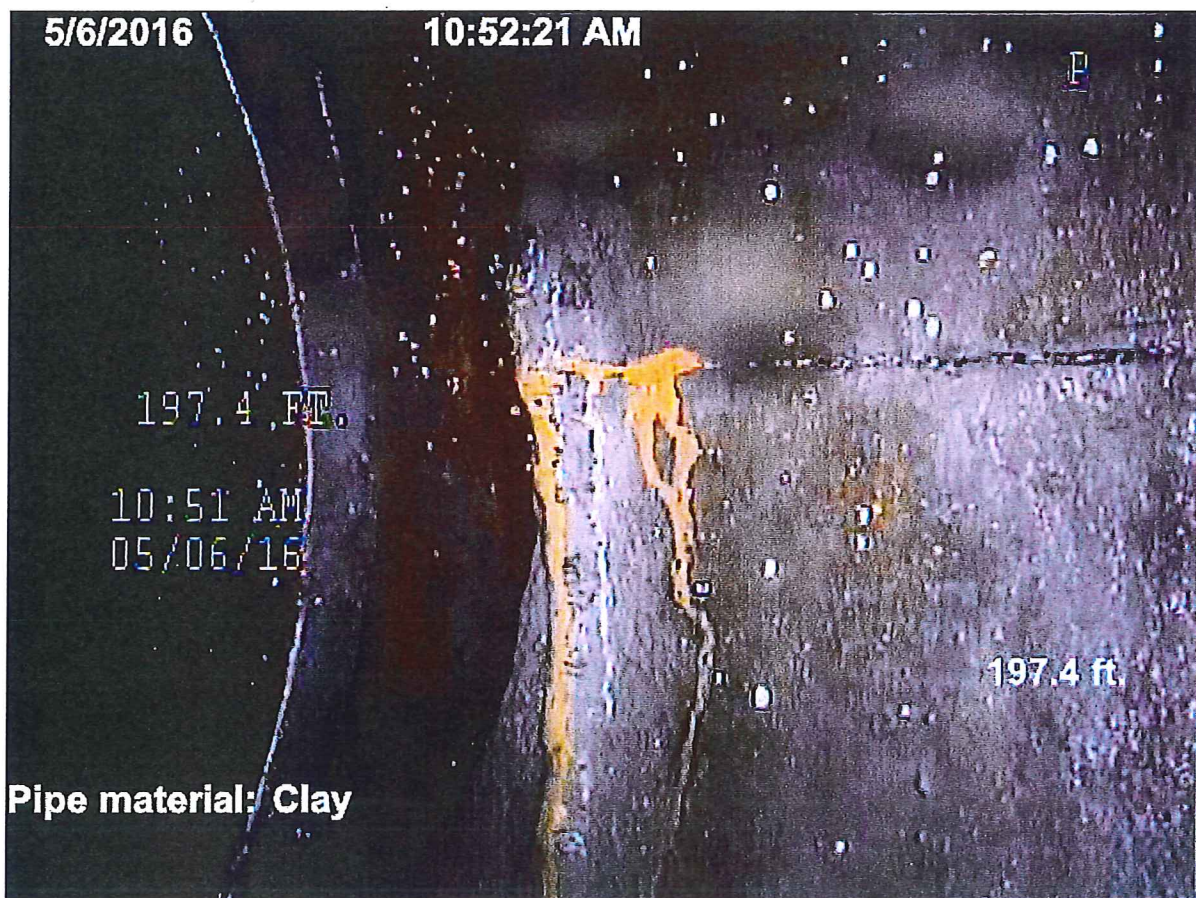
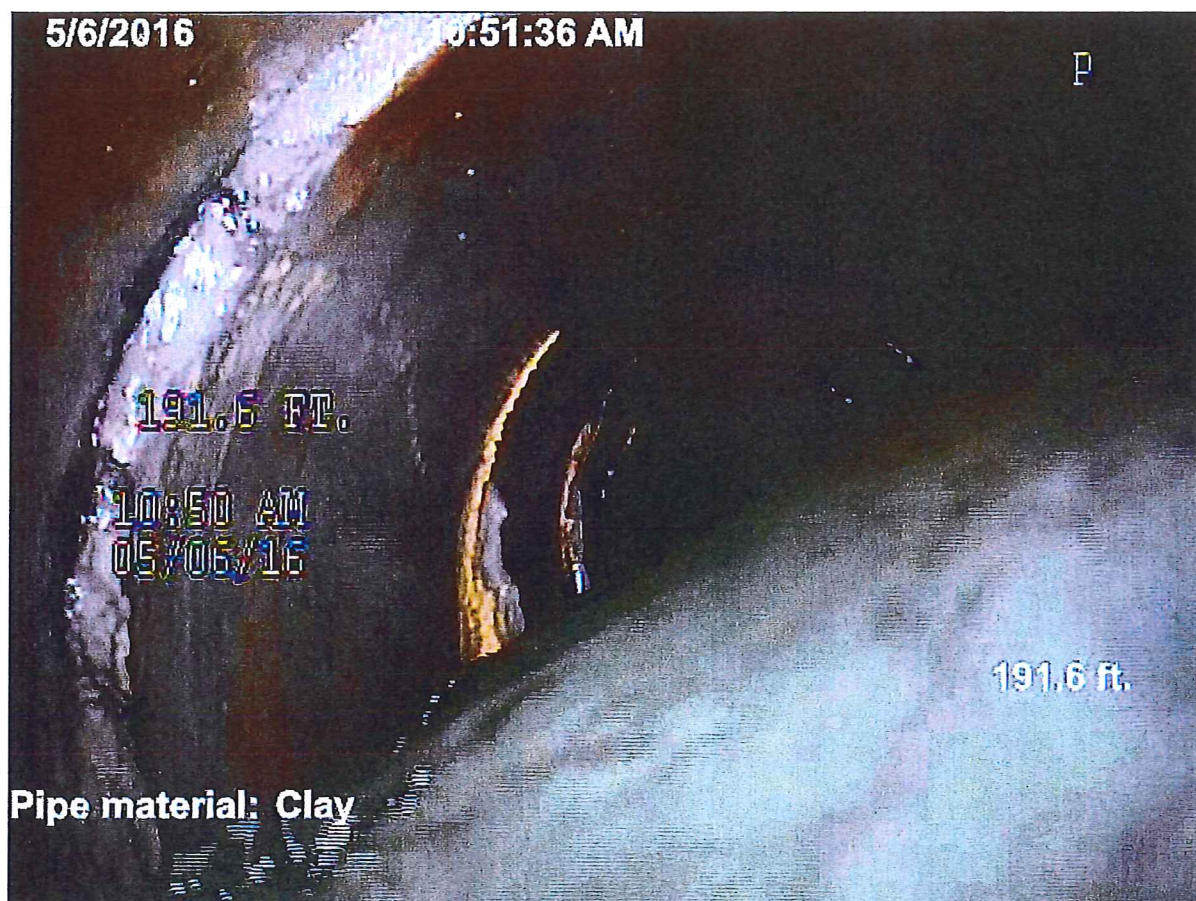
10:42:05 AM

117.6 FT.

10:41 AM
05/06/16

Pipe material: Clay





5/6/2016

10:55:58 AM

238.4 FT.

10:55 AM
05/06/16

238.4 ft.

Pipe material: Clay

5/6/2016

11:01:06 AM

288.6 FT.

11:00 AM
05/06/16

288.6 ft.

Pipe material: Clay

5/6/2016

11:10:25 AM

440.3 FT.

11:09 AM
05/06/16

440.3 ft.

Pipe material: Clay

5/6/2016

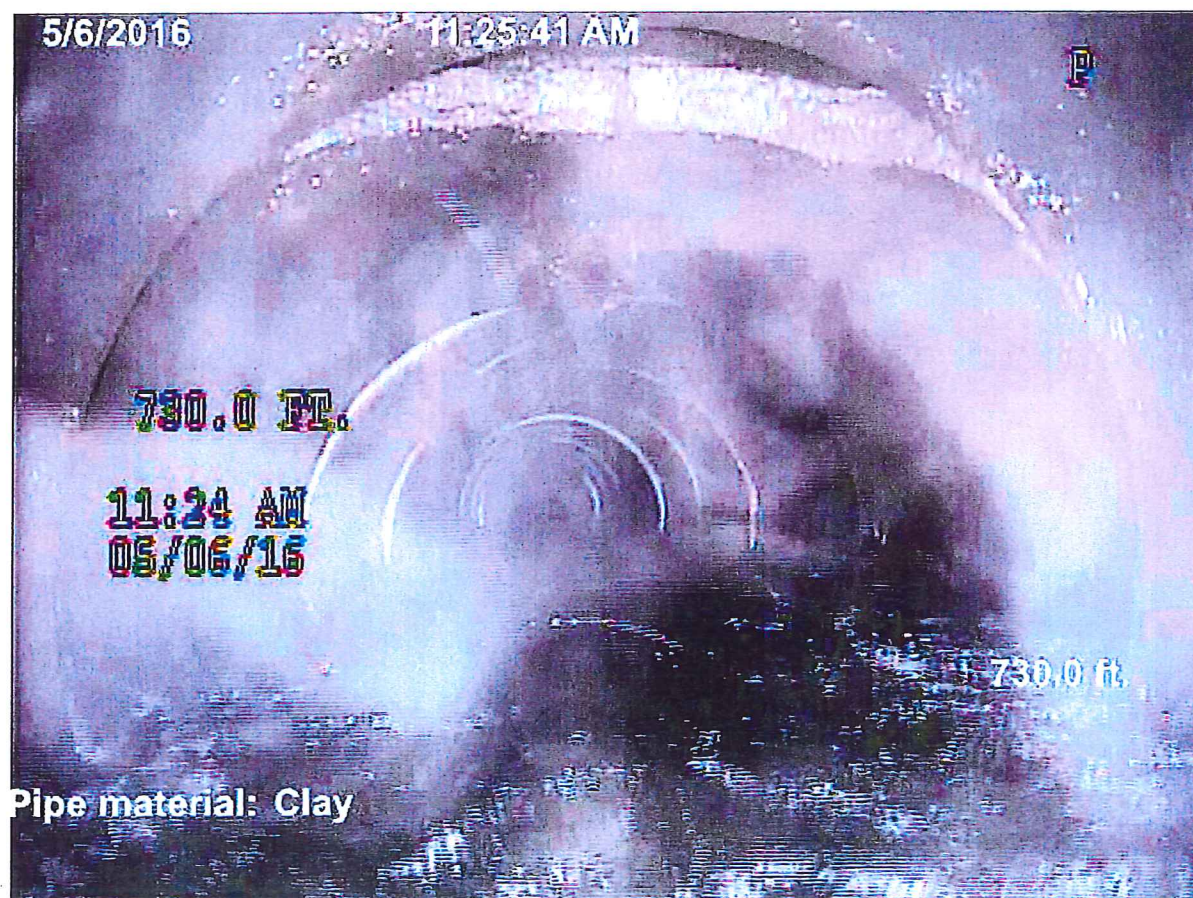
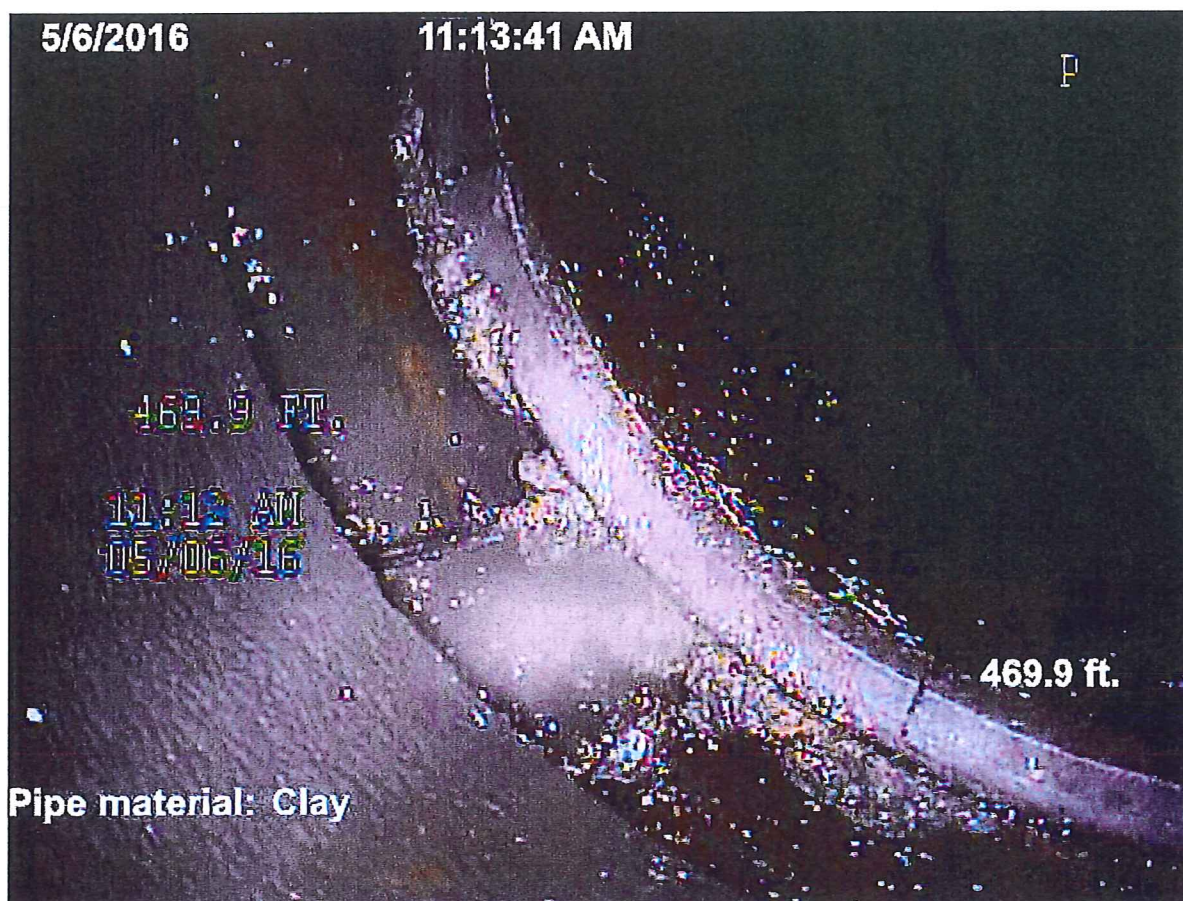
11:11:57 AM

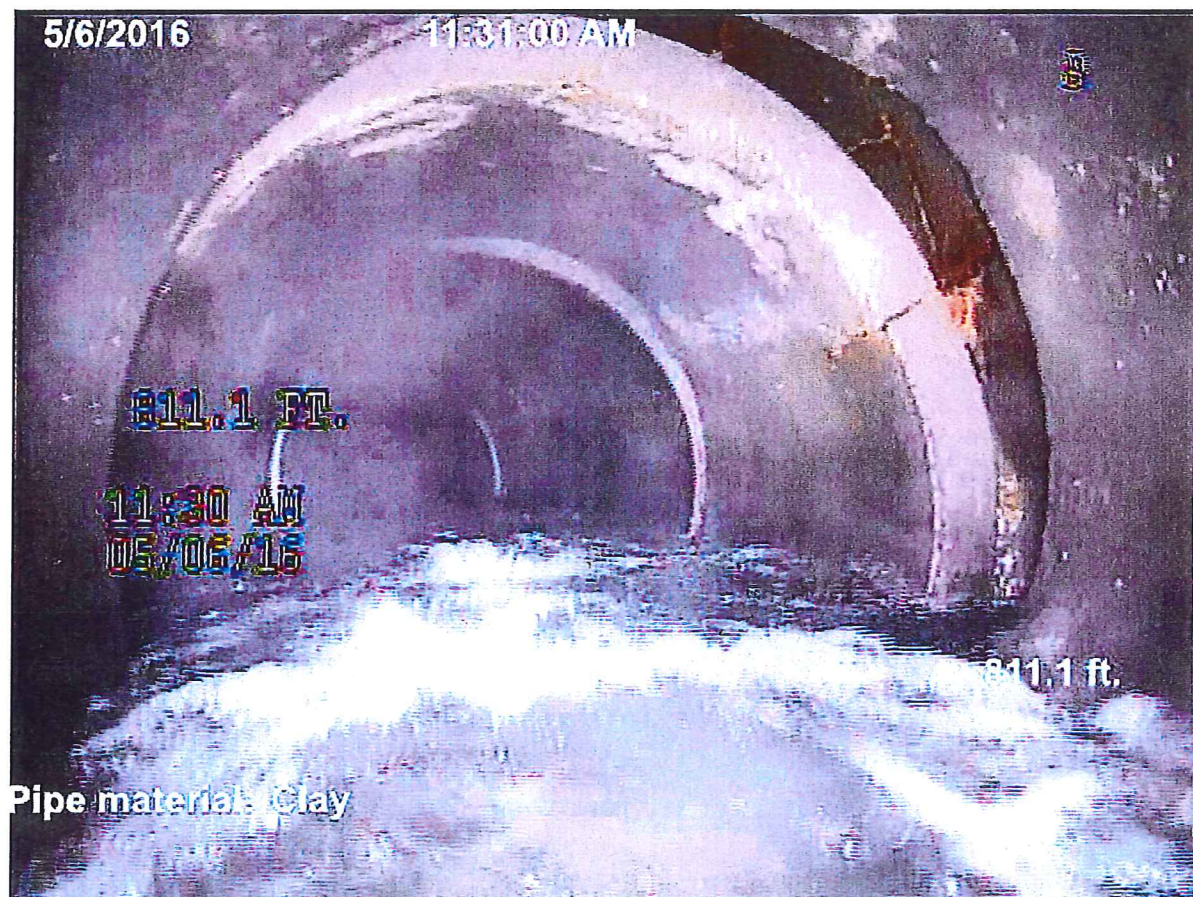
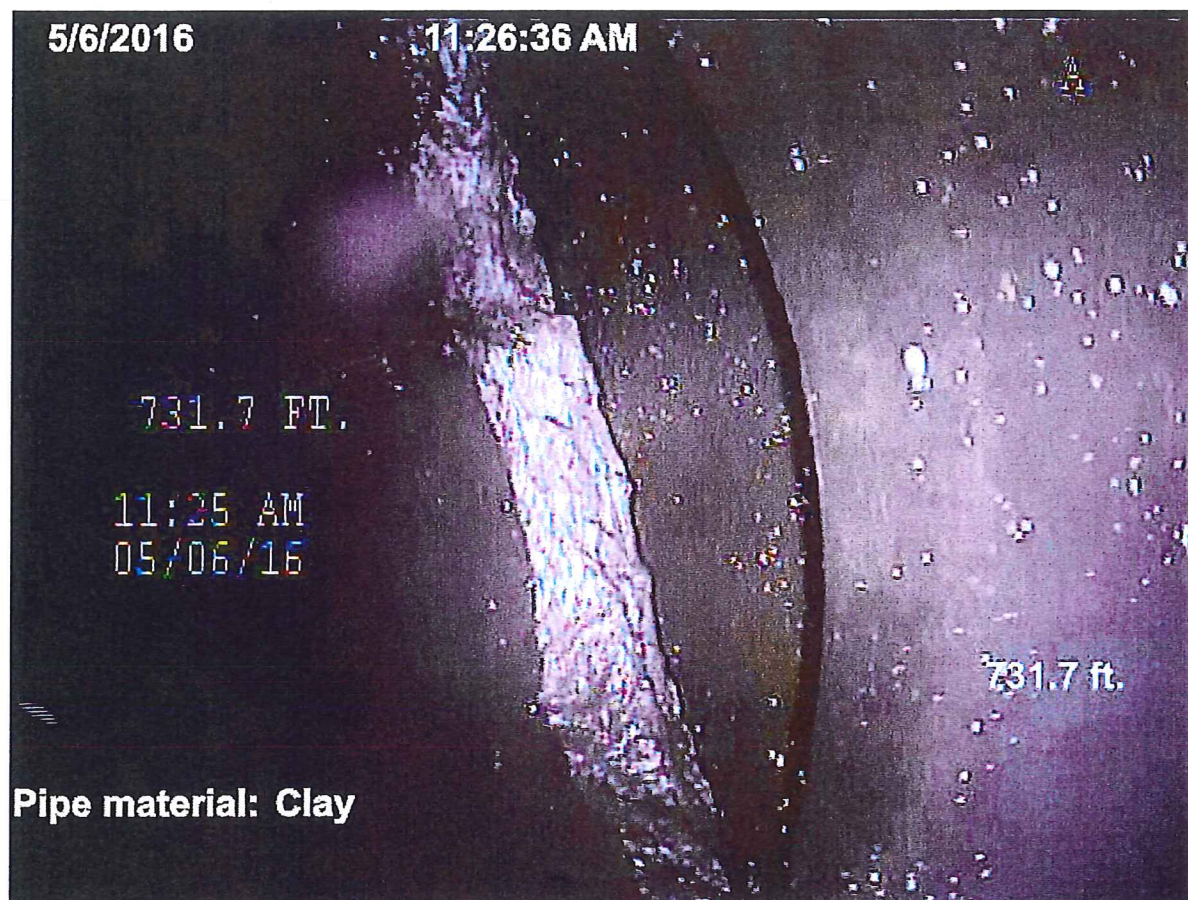
464.3 FT.

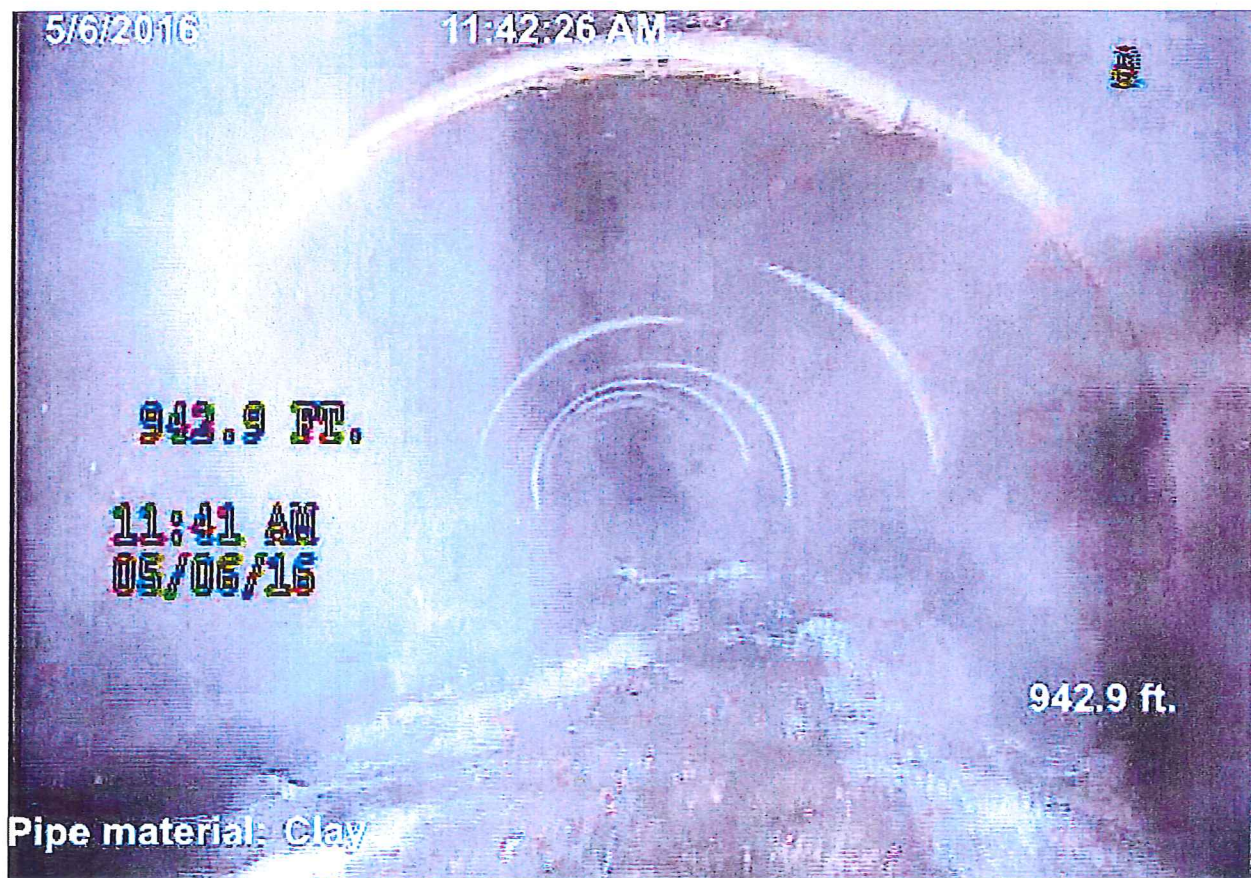
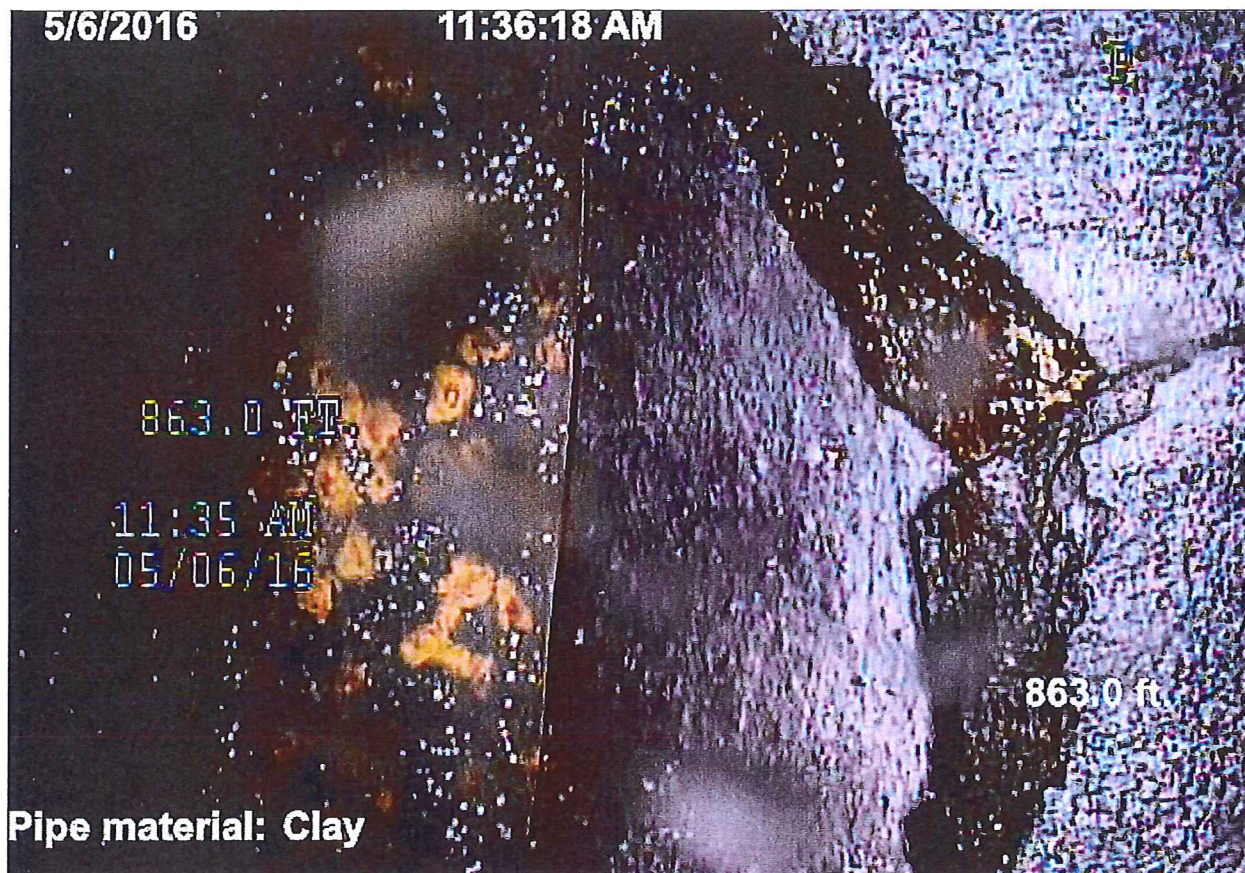
11:11 AM
05/06/16

464.3 ft.

Pipe material: Clay







5/6/2016

11:46:07 AM

1066.4 FT.

11:45 AM
05/06/16

1,066.4 ft.

Pipe material: Clay

Distance: 1476.1 ft.

END OF SURVEY -

Clock from:

Clock to:

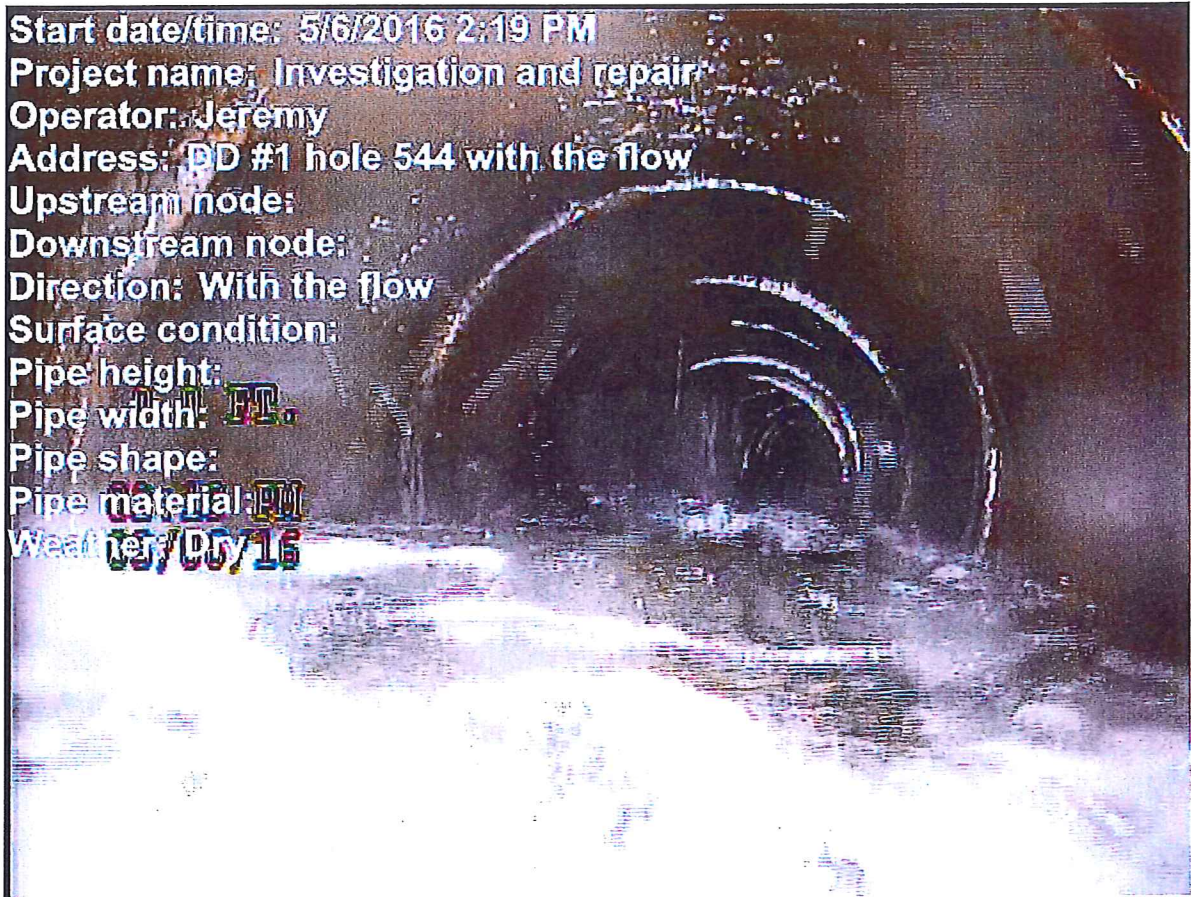
Rating:

Maximum capacity of equipment

1476.1 FT.

12:03 PM
05/06/16

Start date/time: 5/6/2016 2:19 PM
Project name: Investigation and repair
Operator: Jeremy
Address: PD #1 hole 544 with the flow
Upstream node:
Downstream node:
Direction: With the flow
Surface condition:
Pipe height:
Pipe width: 11 FT.
Pipe shape:
Pipe material: PM
Weather: Dry



5/6/2016

2:23:01 PM

30.1 FT.

02:22 PM
05/06/16

30.1 ft.

Pipe material:

